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NEW SPECIES OF RUSSULA FROM MASSACHUSETTS

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In October, 1916, Mr. Simon Davis sent me for examination and identification an interesting collection of *Russula* made in the vicinity of Stow and South Acton, Massachusetts. Twenty species were represented, including *R. fallax* Fr., *R. fragiliformis* Burl. (*R. fragilis* Fr.), *R. glauca* Burl., *R. heterophylla* Fr., *R. insignis* Burl., *R. integra* (L.) Fr., *R. pectinatoides* Pk., and *R. vetermosa* Fr. Eight other species I have reserved for further study, either awaiting notes regarding some particular point should the same species appear another season, or comparison with European material. Four species, however, differ so much from any related European or American *Russula* that they seem entitled to rank as new species. All of these were accompanied with careful and complete field notes and spore prints, and the dried plants were in excellent condition and in sufficient quantity to give a good idea as to the possible variations.

Russula Davisii sp. nov.

Pileus broadly convex, depressed in the center, becoming expanded with the margin drooping, up to 18 cm. broad; surface entirely Pinard-yellow, or tinged with dull-reddish on the margin, viscid when wet, with separable pellicle, pruinose when young, then glabrous; margin even, at least the striations not pronounced; context white, firm but brittle, mild without special odor; lamellae buff-yellow when developed, equal, forking near the stipe, venose-connected, pilose, narrowed at the inner end, adnexed to slightly decurrent, broad at the outer end, up to 13 mm. broad, subdistant; stipe more or less washed with bluish-pink, very slightly discoloring grayish or sordid, expanding at the apex, tapering downward, rather firm, spongy, becoming hollow, glabrous, up to 7 cm. long and from 2 to 3 cm. in diameter; spores ochraceous, ellipsoid, coarsely and abundantly echinulate, $10-12 \times 8.5-10 \mu$; cystidia 50μ or more long by 18μ wide.

TYPE LOCALITY: Stow, Massachusetts.

HABITAT: On damp ground under chestnut trees, solitary or gregarious, August 7 to September 22.

RELATIONSHIP AND CHARACTERISTICS: This species seems to be related to the *Betulinae* group. The lamellae do not discolor at all and the discoloring of the stipe is so slight that it might easily be overlooked, so that it does not seem to be related to the *Decolorantes*. It can easily be distinguished by the general yellow color of the pileus and the reddish stem. The flesh is nearly as compact as in some species of the *Compactae*. The pruinose-pilose lamellae forking at the inner end, and the unequal stipe with its slight discoloration are some of the characteristics which prevent its being considered a yellow form of *Russula alutacea* Fr.

***Russula disparalis* sp. nov.**

Pileus broadly convex, becoming expanded and depressed in the center, up to 5.5 cm. broad; surface buff-yellow near the margin, Apricot-yellow toward the center, Sanford's brown to Auburn or Hessian-brown on the disk, viscid when wet, with separable pellicle, pruinose, otherwise glabrous; margin striate and obsoletely tuberculate, inrolled until mature; context white, taste subacid, odor not distinctive; lamellae white, mostly equal but a few not long enough to reach to the stipe, adnexed and rounded next the stipe, rather broad, subcrowded; stipe white, equal, spongy, becoming hollow, glabrous, rugose, subflexuose to straight, up to 5.5 cm. long and 1.5 cm. in diameter; spores ochroleucous, broadly ellipsoid, uniguttulate, apiculate, minutely echinulate, $8.7\text{--}10 \times 6\text{--}7.5 \mu$, from 1.5 to 1.8μ being taken up by the point at the apex of the spore.

TYPE LOCALITY: Stow, Massachusetts.

HABITAT: Under chestnut trees in damp ground near a swamp. Also under *Pteris aquilina*, *Osmunda cinnamomea*, *Osmunda regalis*, black and white birch, and alder. Found from August 4 to September 11.

RELATIONSHIP AND CHARACTERISTICS: This species belongs to the group *Palustres*. It may be recognized by the contrasting yellow margin and the dark-brown center, and the pure-white stipe. It is so different in appearance from other species of

Russula that I have given it the specific name "disparilis" or the unlike *Russula*.

***Russula pulchra* sp. nov.**

Pileus convex, becoming plane to slightly depressed in the center, up to 8 cm. broad; surface Nopal-red on the margin, scarlet-red next and scarlet on the disk, or peach-red except on the margin, viscid when wet with pellicle separable on the margin, pruinose for some time, all except the disk becoming areolate with age; margin tuberculate-striate, inrolled; context white, mild, without special odor; lamellae white, equal, margin entire, forking next the stipe, venose-connected, broadest next the margin, adnate, thin, subdistant; stipe white, inclined to be pointed at the base, spongy-stuffed to hollow, glabrous, rugulose, up to 7 cm. \times 2 cm.; spores cream-white, ellipsoid to egg-shaped, echinulate, uniguttulate, $8.7\text{--}10 \times 7.5 \mu$.

TYPE LOCALITY: Stow, Massachusetts.

HABITAT: In swamp, gregarious, August 27 to September 22.

DISTRIBUTION: Found also at South Acton, Massachusetts, and Wardsboro, Vermont.

RELATIONSHIP AND CHARACTERISTICS: This species seems to belong with the Subvelutinae group, although the nearly white spores might remind one of the Purpurinae group. The pileus is more velvety-pruinose when young, and more broken into areolae when mature than is the case with species of the latter group, and is more brilliant than in any other species having a mild taste and nearly white spores. The stem is white or has merely a blush of red. The description of *Russula paludosa* Britz. as given in Revis. Hymen. IV: 17. 1899, agrees with this species except in the simple lamellae and the scabrous margin of the pileus; but if *R. paludosa* is the same as *R. elatior* Lindbl. as Maire thinks¹ then there is no question regarding the two being distinct; since I have several specimens of *R. elatior* Lindbl. which Professor Romell sent me, and *Russula pulchra* is quite distinct. *Russula elatior* has very much the same appearance as our *Russula rubrotincta*. In fact, specimens of this which I sent to Professor Romell he thought must be that species and suggested to me that I be sure that young specimens of the plants

¹ Bull. Soc. Myc. France 26: 65.

which I had sent him were not acrid. During the following season I tested these in all stages and found the taste in all cases to be sweet and nutty, reminding one of the taste of beechnuts. The spores of *Russula pulchra* appear white except in mass on white paper when they show cream-white. Under the microscope, the spores appear much rougher than spores of *R. uncialis* Pk. The color of the spores in mass will serve to distinguish the species from *R. subvelutina* Pk.

***Russula perplexa* sp. nov.**

Pileus becoming centrally depressed to infundibuliform, up to 7 cm. broad; surface Acouje-red to Dragon's blood-red or salmon-buff with amaranth-purple intermixed in the center, or even salmon-buff in the center to Apricot-yellow or coral-pink elsewhere, viscid when wet, cuticle separable nearly to the center, pruinose, otherwise glabrous; margin tuberculate-striate, in-rolled; context white, thin toward the margin, mild, without special odor when fresh but sour in drying, fragile; lamellae white, equal, simple, margin entire, broadest at outer end, adnate, close, thin, pruinose; stipe white washed with red, tapering downward, becoming hollow, 7.5 cm. long by 5 mm. thick; spores white, echinulate, ellipsoid, apiculate, $10 \times 7.5 \mu$ including the apex.

TYPE LOCALITY: Stow, Massachusetts.

HABITAT: Mixed woods in a swamp, gregarious to solitary, July 30 to September 14.

RELATIONSHIP AND CHARACTERISTICS: This species belongs in the *Purpurinae* group. It differs from *R. uncialis* Pk. in its larger size, infundibuliform pileus, and pronounced tuberculate-striate margin; from *R. purpurina* it differs in the edge of the lamellae being even, and the lamellae not becoming yellow with age, and scarcely so in drying; from *R. Linnaei* Fr. in the viscid, pruinose pileus, in the simple lamellae which do not become yellow, and the tuberculate-striate margin. It differs from all of these in the sour odor which develops during drying.

It is about the size and texture of *R. fragiliformis* Burl. and may be recognized by the somewhat vinous-red color, with or without buff color, the infundibuliform mature pileus, the mild taste, and white spores.